

Staff Draft

California Energy Outlook: Electricity and Natural Gas Trends Report



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California Energy Commission
September 21, 2001



Purpose of Report

- Responds to Section 25553 of PRC
- Enacted by AB 970, Chapter 329, Statutes of 2000
- Provide “information on the status of electricity supply, demand, and conservation.”
- Recommend measures... to ensure adequate supply and energy conservation in the state.”



Focus of Report

- Energy supply and demand trends of past decade
- Cover electricity and natural gas developments
- Trends provide perspective on current events
- Overview of 2001-2004 supply adequacy outlook
- 10-year demand outlook
- Efficiency contributions
- Infrastructure developments



Limits to Scope of Topics

- Does not address market design issues
 - Market design problems reported by ISO, FERC, utilities, academic institutions
- Rapidly changing market developments
- Numerous Legislative bills, FERC and CPUC decisions
- Infrastructure issues - primary area of focus



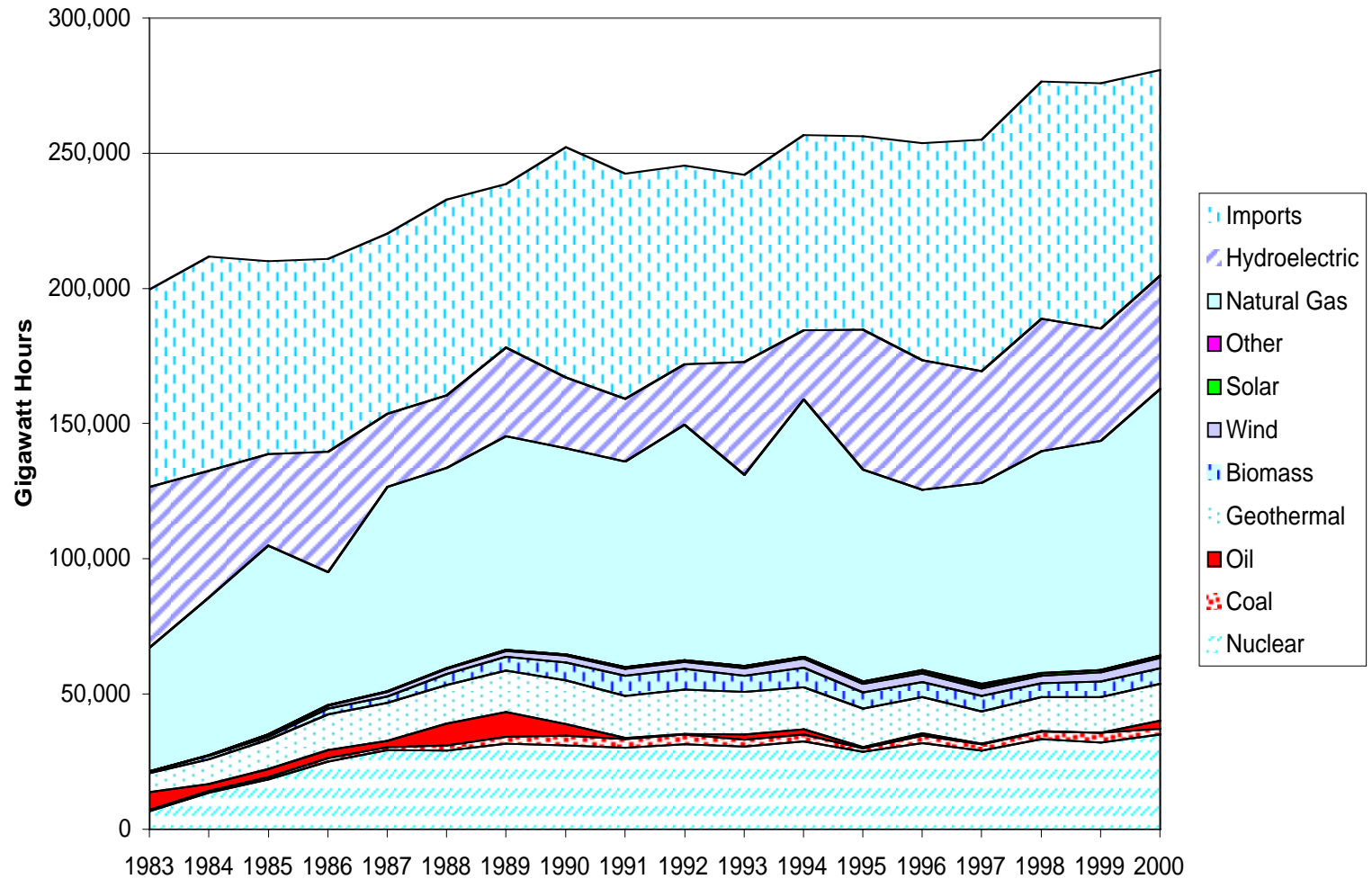
California's Electricity System

- Current generation system
- How the system has developed over years
- Interstate trade relationship
- CA-Western US trends



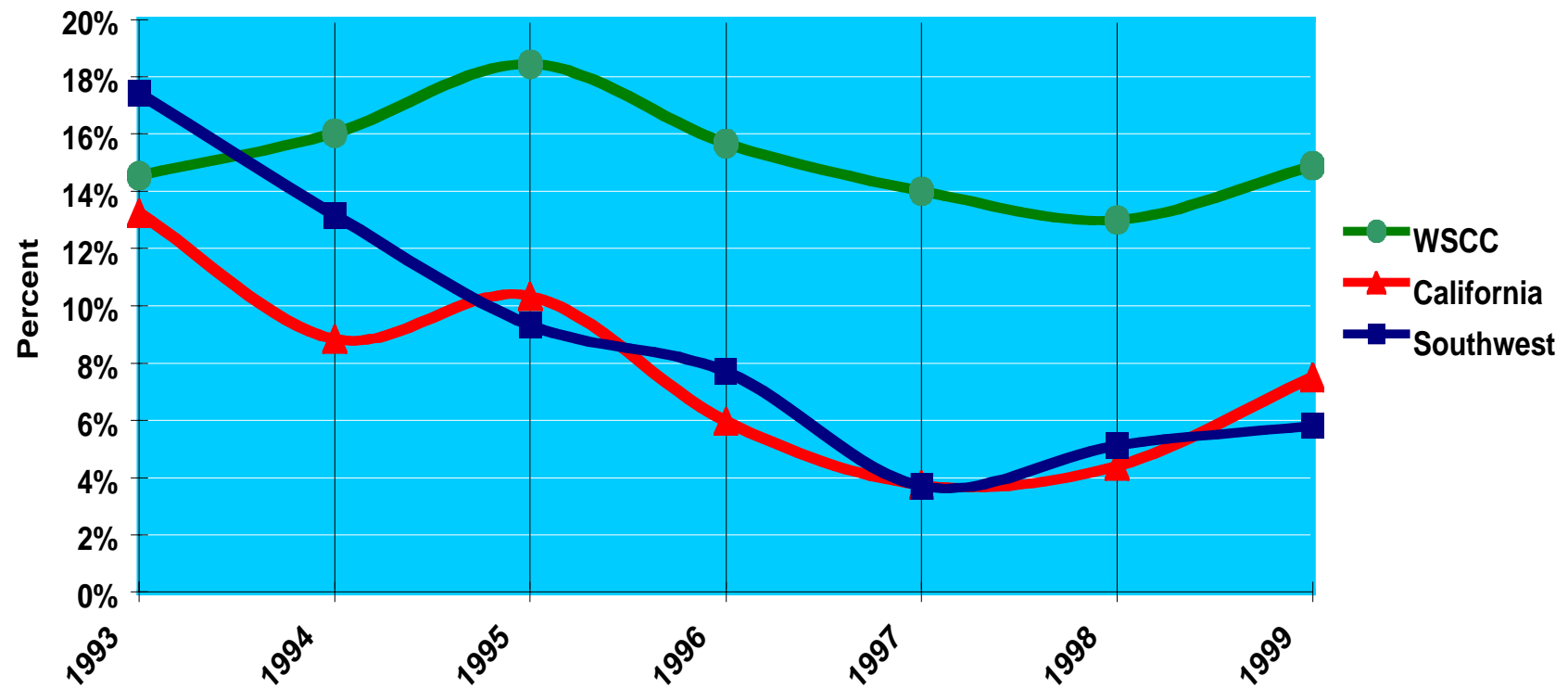
California In-State Generation and Imports

Imports include California's share of out-state coal/nuclear plants



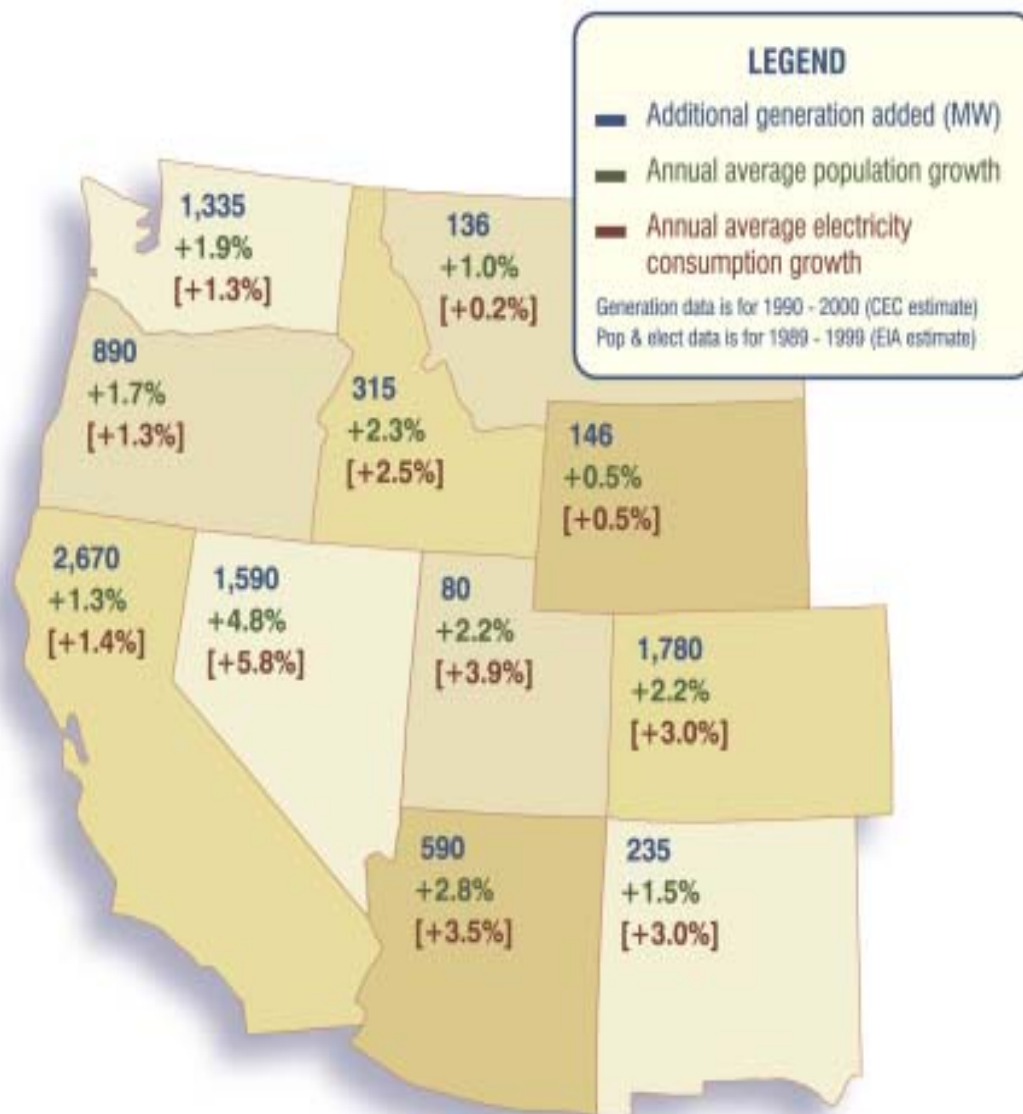


Non-Coincident Peak Reserve Margins 1993-1999





Population and Demand Growth (1999-2000)





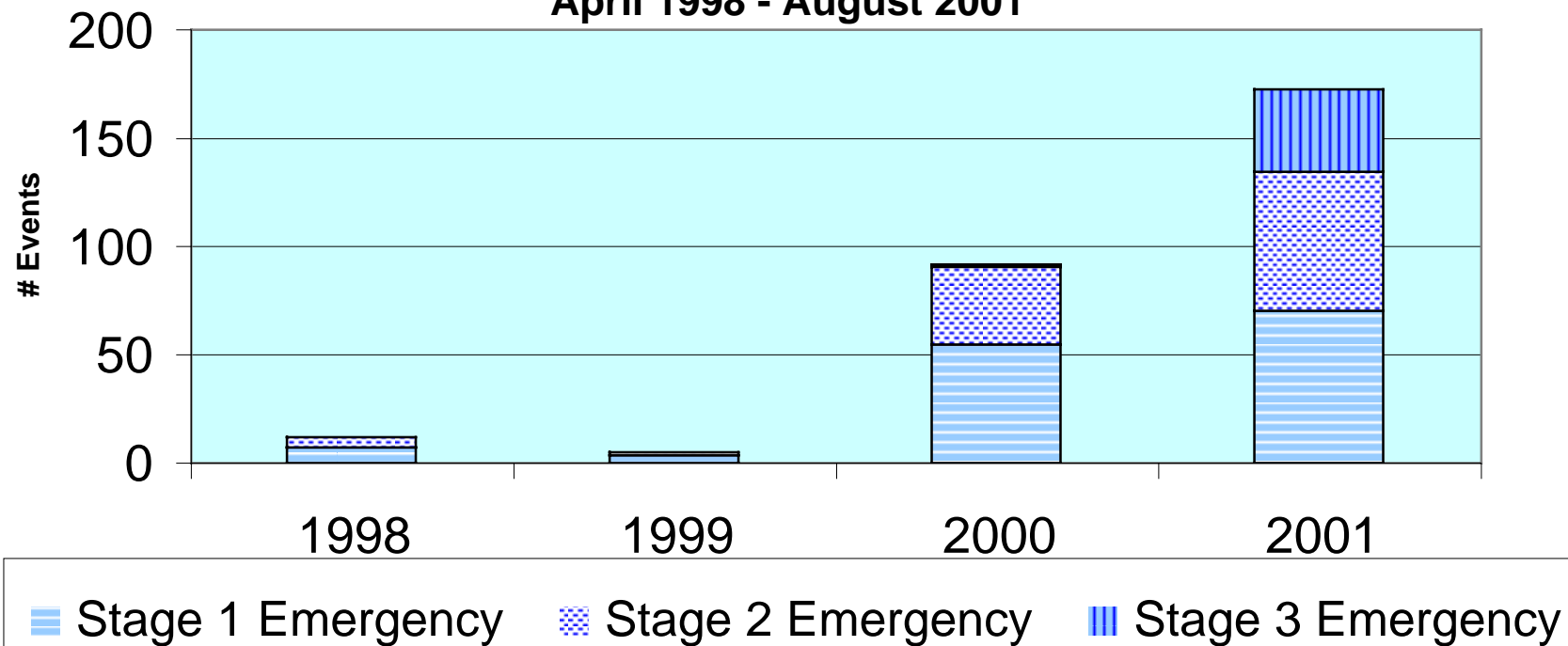
Energy Markets in Transition

- Recent Developments in electricity market
- Decline in system reliability
- Wholesale price increases
- Retail Price Developments



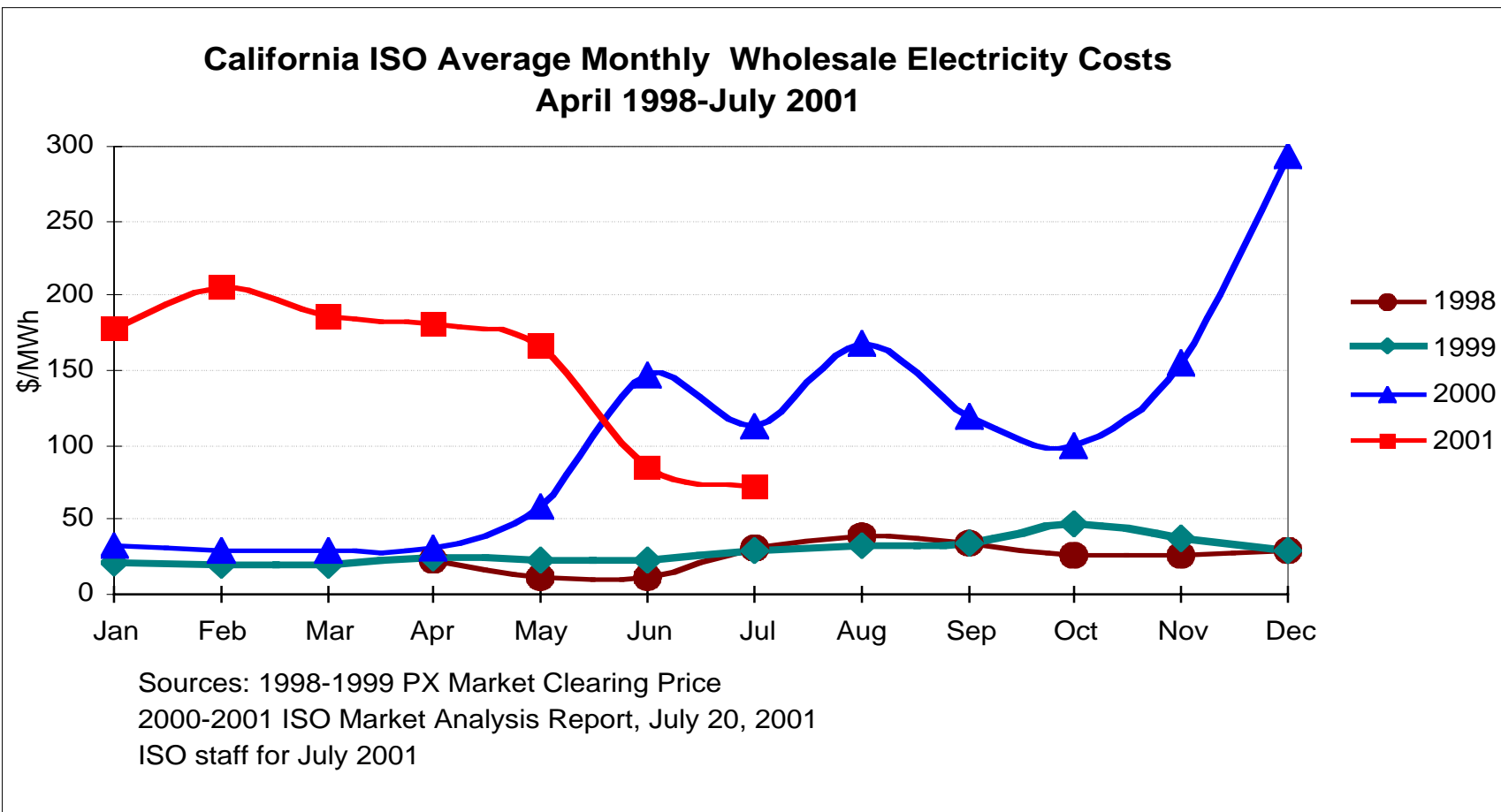
ISO Emergency Declarations

April 1998 - August 2001





CAISO Wholesale Electricity Costs (\$/MWh)



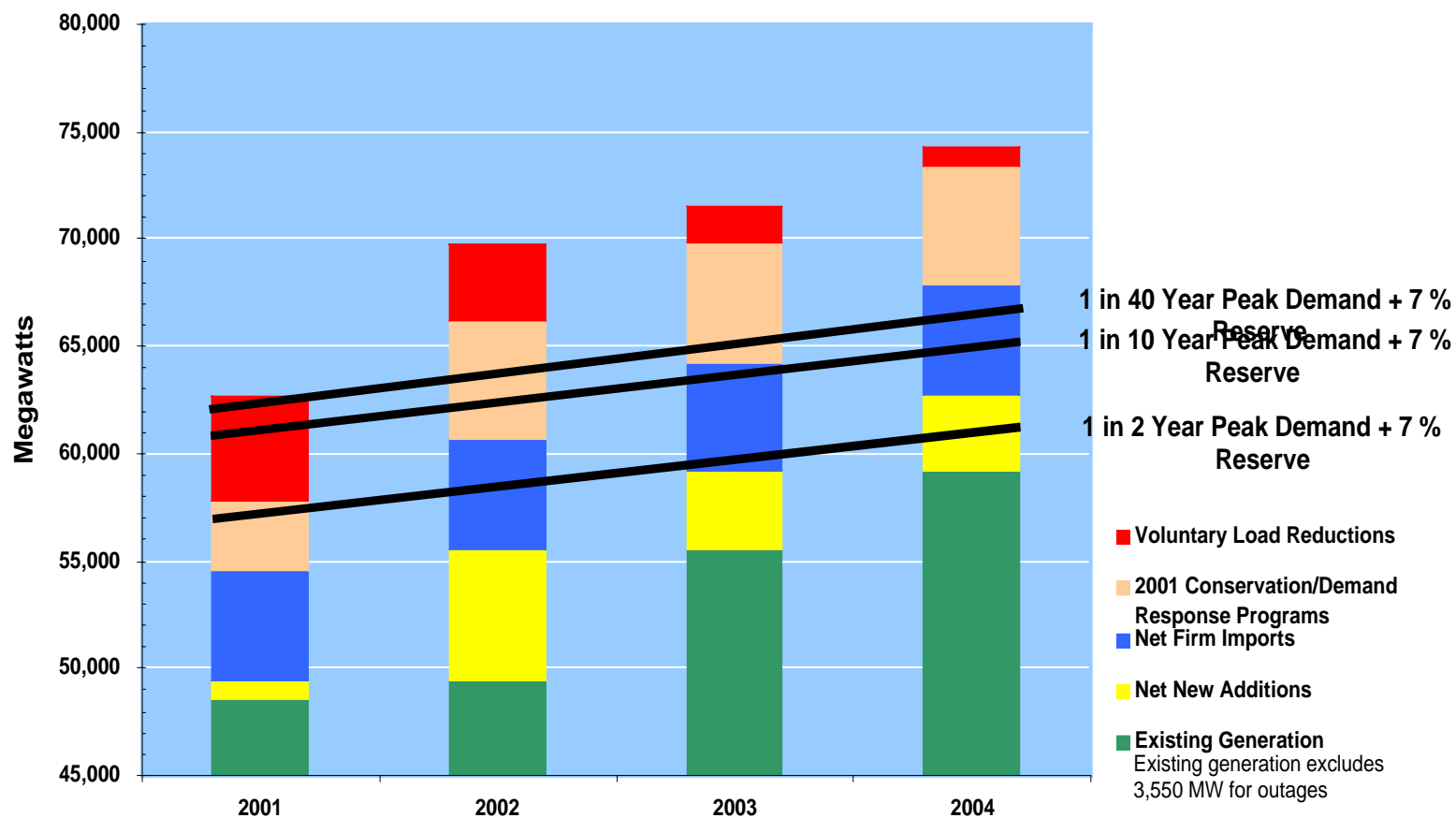


Electricity Generation Supply Trends

- Generation supply trends of last summer
- New generation developments in CA and throughout the West
- Assessment of 2001-2004 supply outlook



CA Load/Resource Balance July 2001-2004





Electricity Consumption Trends

- Overview of recent demand trends
- Demand growth by region and sectors
- Temperature conditions and demand relationship
- 10-year forecasts



Residential Electricity Use kWh per capita, 1960-1999

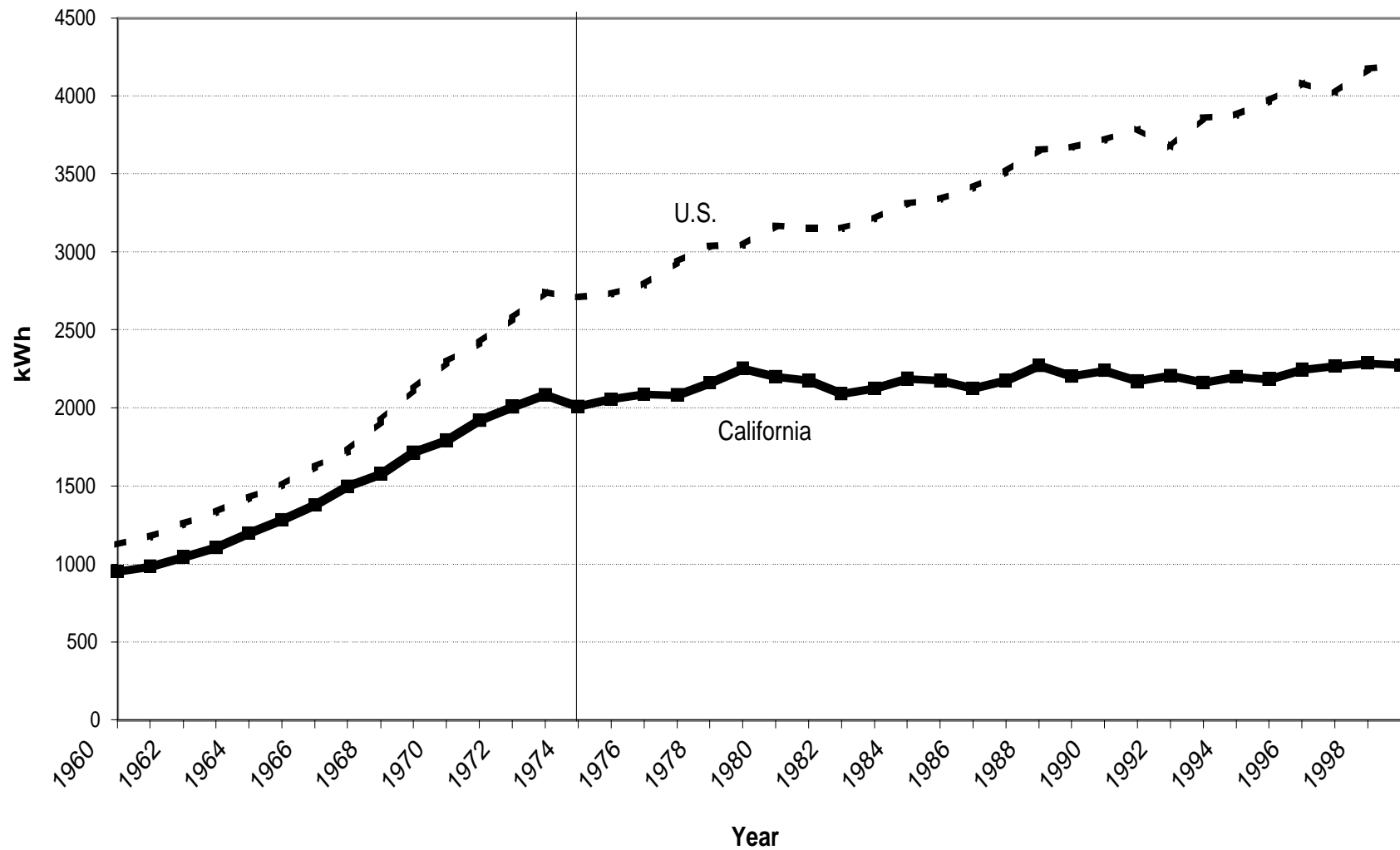
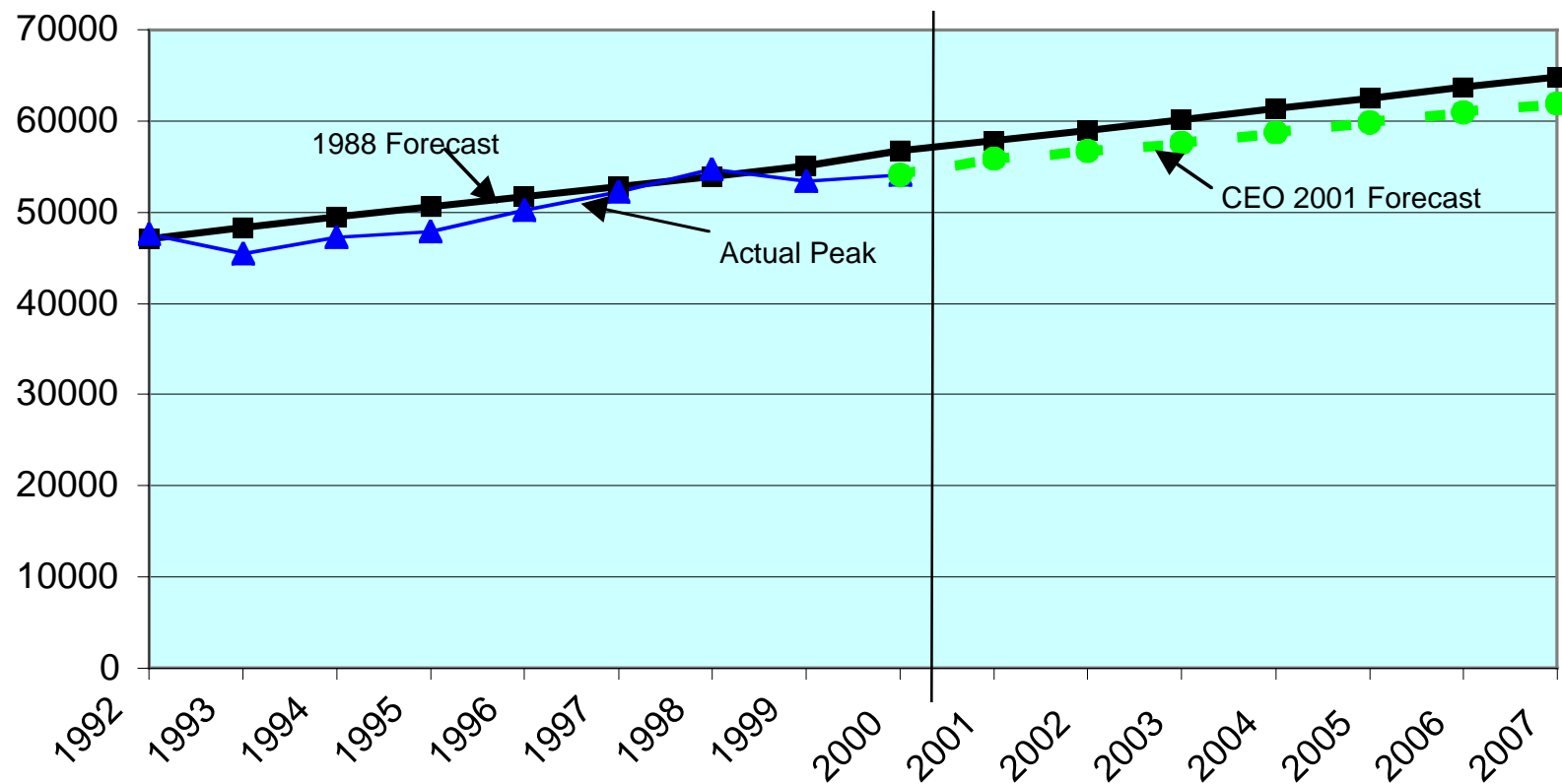




Figure 5-1
Statewide Peak Demand (MW)



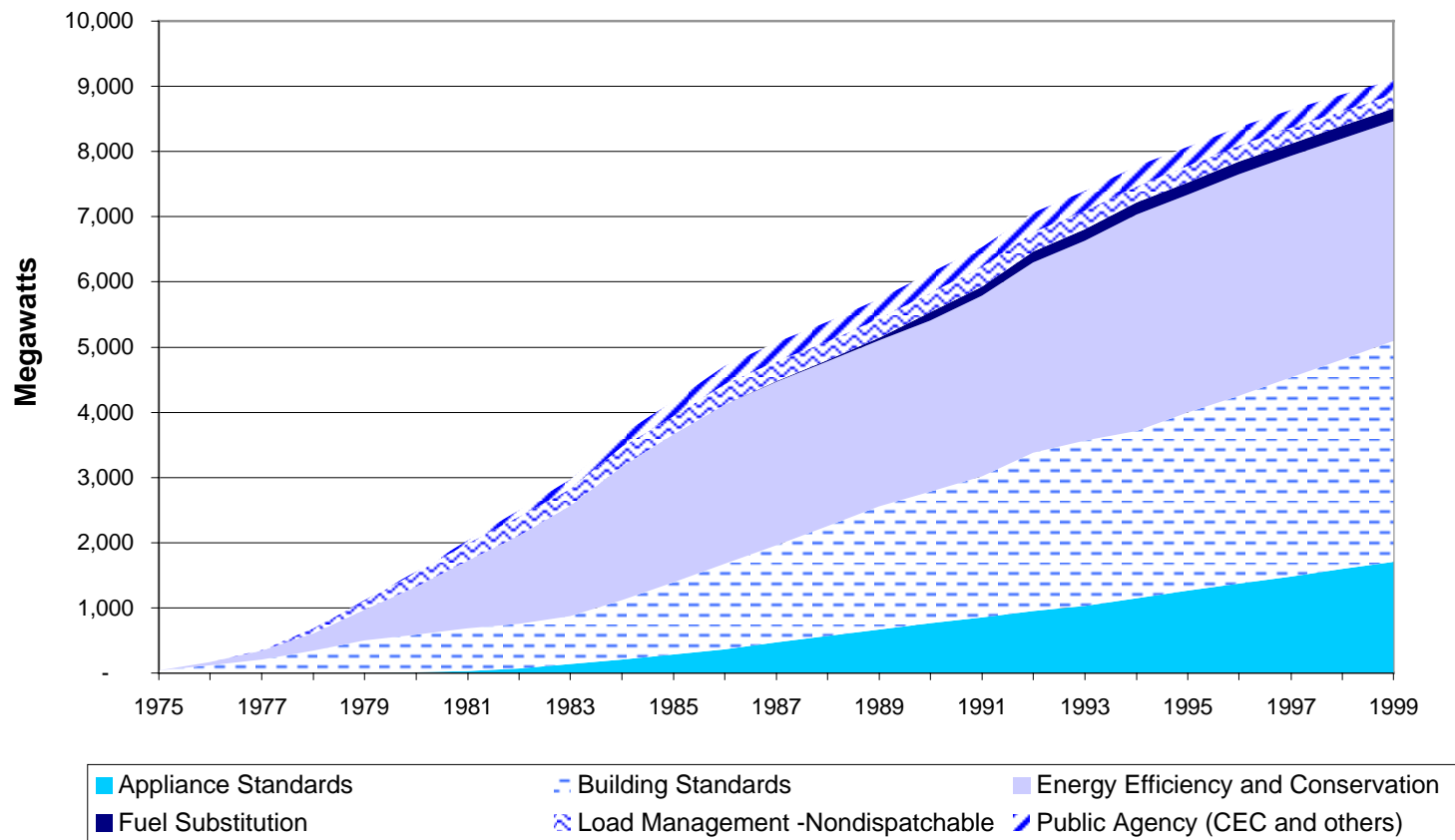


Energy Efficiency Opportunities

- Past savings from efficiency improvements
- Current efficiency programs
- Important elements to balancing supply requirements



Figure 6-1
Statewide Peak Impacts of Selected DSM Programs and
Standards Implemented Prior to 2000



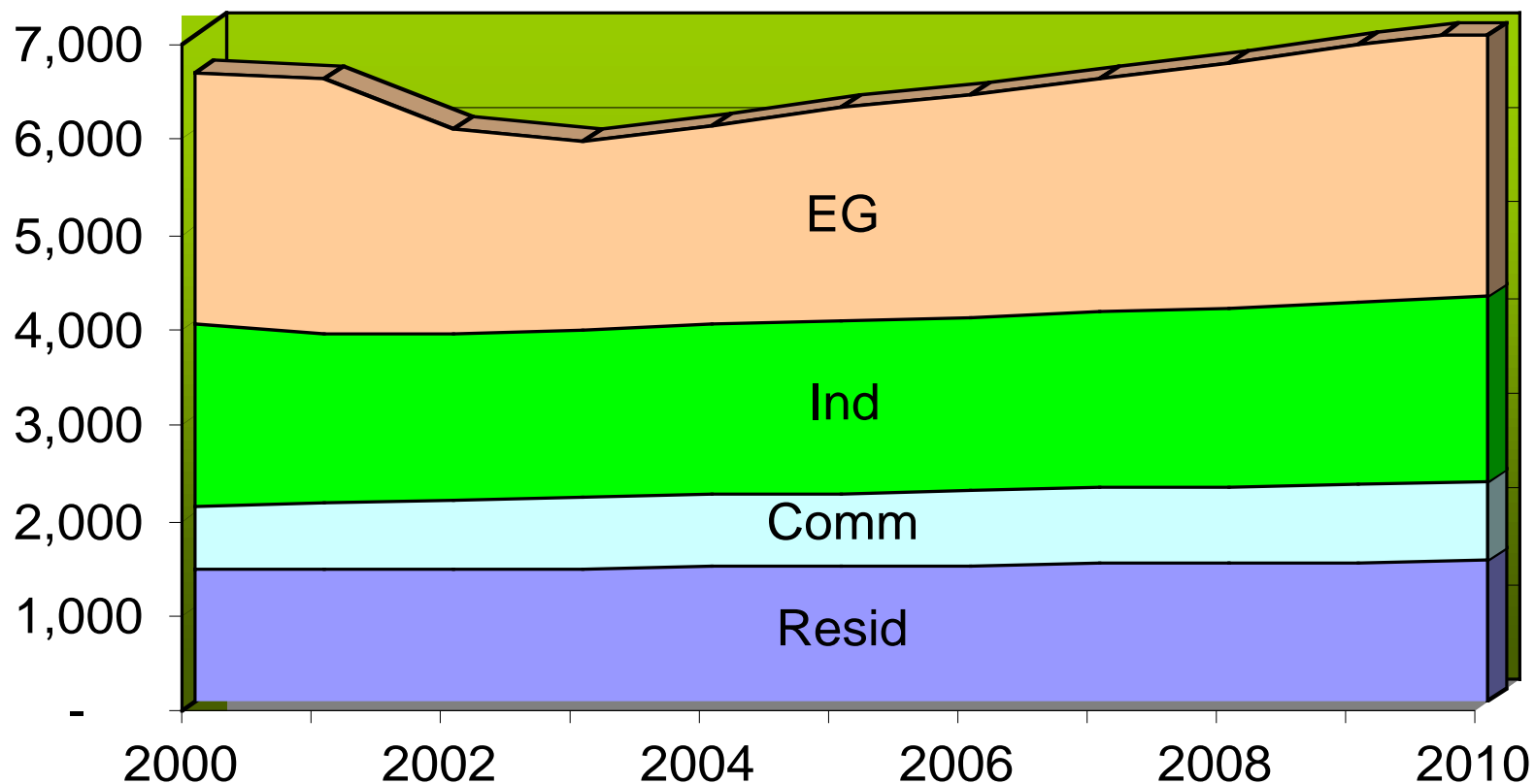


California Natural Gas Developments

- Description of the pipeline system
- Location of proven reserves and potential resources
- California production trends
- Long-term supply outlook
- Consumption trends
- System constraints



Total Natural Gas Consumption by Market Sector



Note: 2000 is actual

Source: California Energy Commission



Appendices

- Demand Responsiveness
 - Give consumers more control over electricity consumption
 - Design issues with retail market structure
- Wholesale Prices in a Sustainable Market
 - Electric generation costs
 - Price signal incentives for new entry